Proposed Residential Development
48 New Road, Sutton Bridge, PE12 9RQ

Tree Survey and Arboricultural Impact Assessment

Finalised January 2021



Prepared for

David Goode

Prepared by
Richard Morrish Associates Ltd
Landscape Design + Environmental Planning
56 Common Lane
North Runcton
King's Lynn
Norfolk, PE33 ORF
Tel. 01553 840284
Email: enquiries@rmassoc.co.uk
www.rmassoc.co.uk

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1 Introduction.

1.1 This report has been prepared to support a planning application for a residential extension at 48 New Road, Sutton Bridge, in the district of South Holland.

1.2 The survey was undertaken on 2nd September 2020 by Richard Morrish (Tech ArborA) in dry, clear weather conditions. The survey base data has been provided by CBFA Ltd. The site is not within a conservation area and no TPO designations have been identified.

1.3 Limitations: Trees have been assessed from ground level only and no detailed investigation of any structural or physiological defects has yet been undertaken. It should be stressed that although the health and safety of the trees is an aspect of the assessment methodology used, this report is intended for planning purposes only. It should not be used as an assessment of tree safety and Richard Morrish Associates can accept no liability for any damage or injury sustained in future as a result of the failure of any tree or its parts. It will remain the present and future tree owner's responsibility to consider the health of the trees and take appropriate management action to discharge the owners duty of care.

1.4 Disclaimers: This report is intended to support an imminent planning application. Should the planning and development process extend beyond a year of the date of this report, or actions occur on or near the site that could undermine the health, condition and / or stability of surveyed trees, it is recommended that the tree retention categories are reviewed prior to site works commencing.

2 Terminology. (See also Appendix C)

2.1 The criteria and terms in the report are drawn from BS5837:2012 – 'Trees in relation to design, demolition and construction – recommendations'. The BS aims to assist tree retention in the vicinity of new construction where the objective should be to achieve a harmonious and sustainable relationship between trees and structures. The survey work includes a standardised set of measurements, an assessment of the trees' age and general condition (both physiological and structural) and an estimate of the trees likely remaining contribution (in years) for the site. All assessments are based upon the site conditions as they existed at the time of the inspection. On the basis of the findings, each tree is allocated one of four categories ('A', 'B', 'C' and 'U') based on quality and value (in a non-fiscal sense). This provides a guide as to its general suitability for retention within the site

where development is proposed. Categorisation is defined using a 'cascade chart' (refer to Appendix C) and includes sub-categorisation to define whether a tree has particular *arboricultural* values, *landscape* values and cultural *and conservation* values.

2.2 The survey allows development of a *Tree Constraints Plan* (refer to drawing TS01, Appendix A) based on the calculation of *Root Protection Areas (RPA's)* for each of the trees on or near the study site. The RPA is defined as a "*layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority."*. The RPA is generally shown as a circle. In reality the distribution of roots around a tree will frequently prove to be asymmetrical due to the presence of physical constraints or a variety of conditions that may affect root development. Where it is considered likely that root growth has been restricted in one direction and favoured in another the arboriculturist may propose to modify the RPA shape to better protect the tree's viability.

2.3 The tree constraints analysis also normally includes an assessment of the likely ultimate size and shape of the trees on or near the study site, their likely shading and screening effects, potential branch, leaf or fruit fall and other matters that could conflict with (impact on) proposed structures or the future sustainable management of the site.

2.4 The tree survey and constraints information is applied to the design plan to prepare an *Arboricultural Impact Assessment (AIA)* and a preliminary *Tree Protection Plan (TPP).* For the AIA, an indicative scale of *slight, moderate* to *major* is used to identify the anticipated significance of potential impacts (adverse or beneficial) to trees in construction or operational stages of development.[1] This assessment is used to inform detailed design development – including the positioning of buildings, pavements, retaining structures, services (above and below ground), finished site levels and landscaping works (including new tree planting). The *AIA* report and preliminary *TPP* plan helps to define a sustainable design outcome for existing and future tree planting.

2.5 Once a site plan has been finalised the *TPP* can be agreed and an *Arboricultural Method Statement (AMS)* is prepared detailing how trees selected for retention will be protected throughout the construction period. This defines *Construction Exclusion Zones (CEZ's),* recommendations for construction site arrangements and temporary infrastructure, construction details that allow trees to be safeguarded, details of any preparatory tree works and, if required, a schedule of those works for tendering purposes.

2.6 For the purposes of this planning application an arboricultural implications assessment (AIA) and preliminary Tree Protection Plan (TPP) have been prepared. Further advice may be required once that details of all aspects of the construction are confirmed

3 Tree Survey – Summary.

3.1 The survey has addressed one large beech tree that may be affected by the works – which include demolition of an existing garage, fence and pavement areas and construction of a new single-storey extension.

3.2 Local soils are 'deep, stoneless, calcareous coarse silty soils' (Soil Survey of England and Wales). The presence of shrinkable clays has not been established. Further engineering advice will be required to inform the need for any new foundation design near trees. Natural drainage at the site is expected to be good.

[1] Refer to Appendix C – Item 1:12 for further explanation of this scale.

4.0 Arboricultural Impact Assessment.

4.1 The AIA identifies the likely significance of impacts to trees from the construction and operational activities expected from the proposed development. A sliding scale of *slight*, *moderate* and *major* has been applied to indicate the anticipated significance of impacts where *major* is likely to lead to decline and death of the tree and *slight* is damage that the tree is likely to recover from. (See Appendix C).

4.2 The Beech tree is estimated to be around 100 years old and appears to be in good health. The applicant wishes to retain the tree. It has grown up adjacent early 20thC housing to the north and south and the nearby garage (to the east) is also thought to be an original out-building. It is proposed to remove a lean-to section of the garage and an area of concrete driveway in order to build the extension.

4.3 The driveway to be removed is partly concrete, partly macadam and there are no obvious signs of the pavement being uneven or raised by root growth. Therefore there is potential and likelihood for root growth under the proposed building site – but there is no obvious evidence of it. It is likely that root growth has favoured the garden area to the west (recently covered with shingle – see photographs) but it should be assumed that a large tree like this will have some roots in all directions. Up to 1/3 of the calculated RPA therefore falls within the footprint of the proposed demolition works and new extension.

4.4 The architects have therefore proposed that the new building is supported by a shallow ring beam sitting on screw piles. This will negate the need for a strip foundation and avoid the need for excavated strip foundations through the root zone. Existing building footings, pavement and kerbs are expected to be at least 50-150mm deep – and these will be removed from site. The bottom of the proposed ring beam is shown at 150mm below ground levels. Therefore it is anticipated that there will not be substantial incursions into an area of the root zone that has not previously been affected by the existing built structures. Fourteen screwpiles are proposed which could have some point impact on existing roots. It may be possible to slightly shift screwpile positions if they will obviously impact on large roots. It is suggested that a permeable geotextile and clean shingle spread over the building area will enable access to construct the screwpiles and ring beam whilst minimising ground compaction and disturbance. With appropriate care during site clearance and pile/ring beam construction, the scale of impact should be ***moderate*** or ***slight***.

4.5 Any trenching for additional services or drainage should ideally be avoided within the RPA – and/or not deeper than 150mm. Services under the building will ideally be laid on the ground surface. Existing services should be used where possible. The proposed extension will lie under the tree, and leaves, beech masts and any deadwood will fall onto the roof of the building and into gutters. It is recommended that large gutters are specified with wire balloons at downpipes. Access for regular roof cleaning and gutter management should be allowed for. It is likely that the area of the RPA where the tree can receive natural irrigation (rainfall) and feeding (leaf decay), will be reduced. It is recommended that the applicant considers additional irrigation of the tree during drought periods and occasional root feeding with a phosphite fertiliser (eg Maxwell *Bullet* – applied at recommended rates)

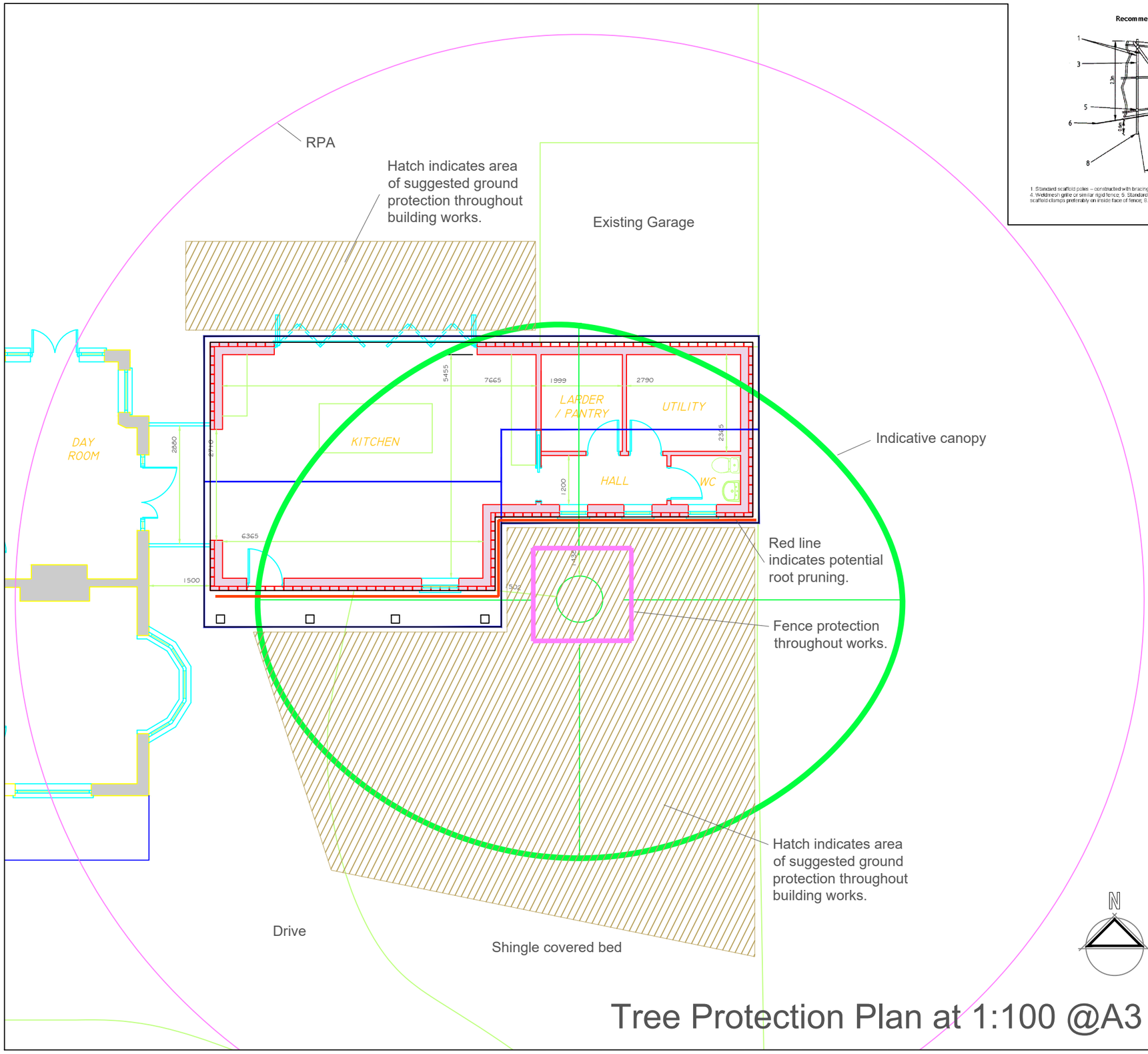
5.0 Preliminary Tree Protection Plan / Arboricultural Method Statement.

5.1 Issues that are to be addressed by the Arboricultural Method Statement and illustrated on the Tree Protection Plan are summarised below:

1. Stem protection.
2. Ground protection; root pruning – if required.
3. Consideration of ongoing needs of the tree once the extension is built
4. Other details that may emerge.

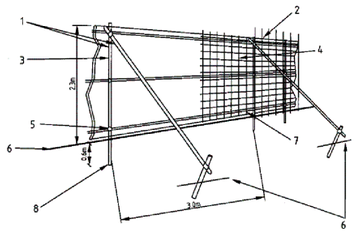
5.2 For more detail refer to the Arboricultural Method Statement.

Richard Morrish - Chartered Landscape Architect, Tech Arbor A.
Finalised (05/01/2021)



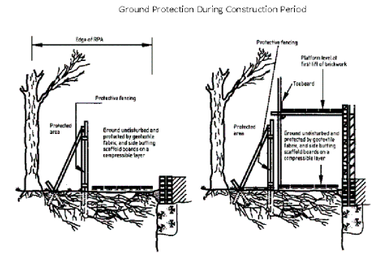
Tree Protection Plan at 1:100 @A3

Recommended design of Protective barrier



1. Standard scaffold poles – constructed with bracing as shown; 2. Horizontal rail at 2.0-2.3m; 3. Verticals at 2-3.0m centres; 4. Weldmesh grille or similar rigid fence; 5. Standard clamps; 6. Ground level; 7. Panels secured to uprights with wire ties and / or scaffold clamps preferably on inside face of fence; 8. Posts driven into ground approx 0.6m – avoiding any large roots or services.

Ground Protection During Construction Period



<u>The following order of works is proposed:</u>
(The Contractor must also refer to the full AMS)

1. Before demolition works take place – Erect a 2.5x2.5m fence protection around the tree stem to ensure there is no potential for damage to the stem.

2. Carefully undertake the demolition and site clearance, including the lean–to garage, pavement and kerb. Avoid any excavations deeper than the proposed ring beam (150mm below existing ground levels). If any tree roots are unearthed, carefully prune or retain as per the Arboricultural Method Statement. Remove all arising from site via the existing driveway. Do not traffic over the shingle garden around the tree.

3. Provide ground protection under the tree as per the TPP 01 drawing.

4. Set out and install the screwpiles, avoiding any large roots that may have been identified.Avoid compaction of the ground within the RPA. This might be best achieved by laying a permeable geotextile and spreading 50–100mm of clean shingle over the building footprint area. Construct the ring beam.

5. Retain the ground protection and fencing around the tree throughout the building works.

6. When the building works are complete, remove the ground protection and fencing. Do not alter levels or traffic over the existing shingle garden if any landscape alterations are undertaken. The tree will benefit from being retained within a natural garden area with other plants and clean soil where leaf litter and or mulch and soil conditioner can enrich the soil on an annual basis.

Key

- 'A' category tree's retained.
- Root Protection Area
- Protective fence barrier
- Ground protection
- Suggested root pruning
- Proposed development

Rev	Amendment	Ch'kd	Date
-	-	-	-

richard morrish associates
landscape design • environmental planning • arboriculture
56 Common Lane, North Runcton, King's Lynn
Norfolk PE33 0RF Tel: 01553 840284
www.rmassoc.co.uk e-mail: enquiries@rmassoc.co.uk

client : David Goode

job : Proposed House Extension

drawing : Tree Protection Plan

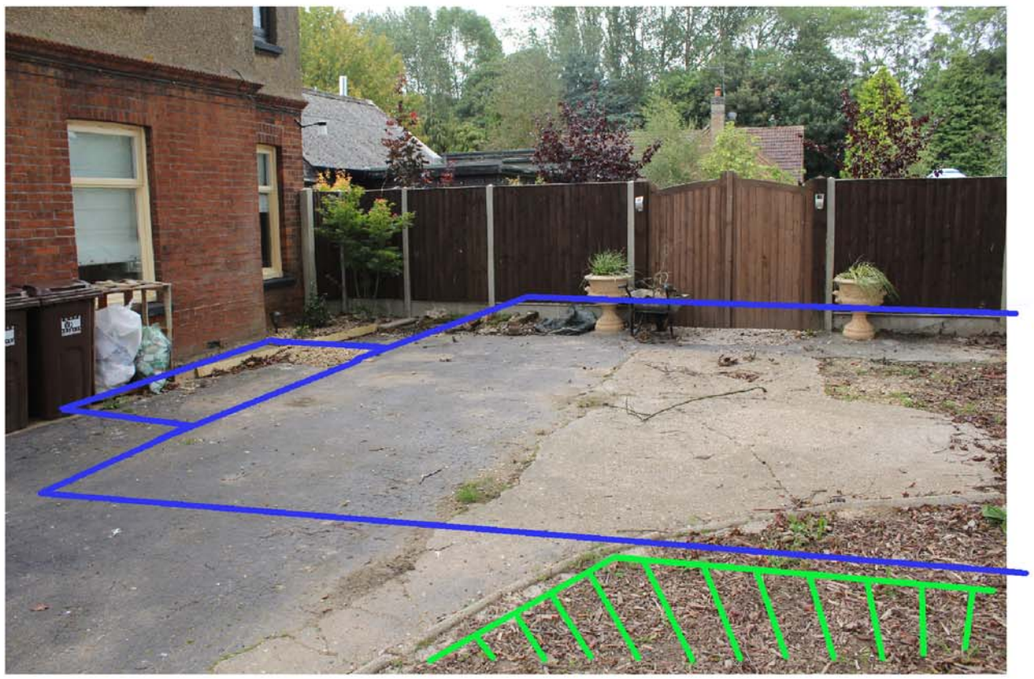
Drawn	Date	Proj. No.
RM	06-01-2021	608/21
Chckd	Scale	Dwg No.
RM	1:100 @ A1	TPP 01



Existing site looking east from the entrance.



Site looking south - with tree and existing garage and pavement.
The blue line indicates approximate position of building.
Green hatch indicates suggested ground protection area



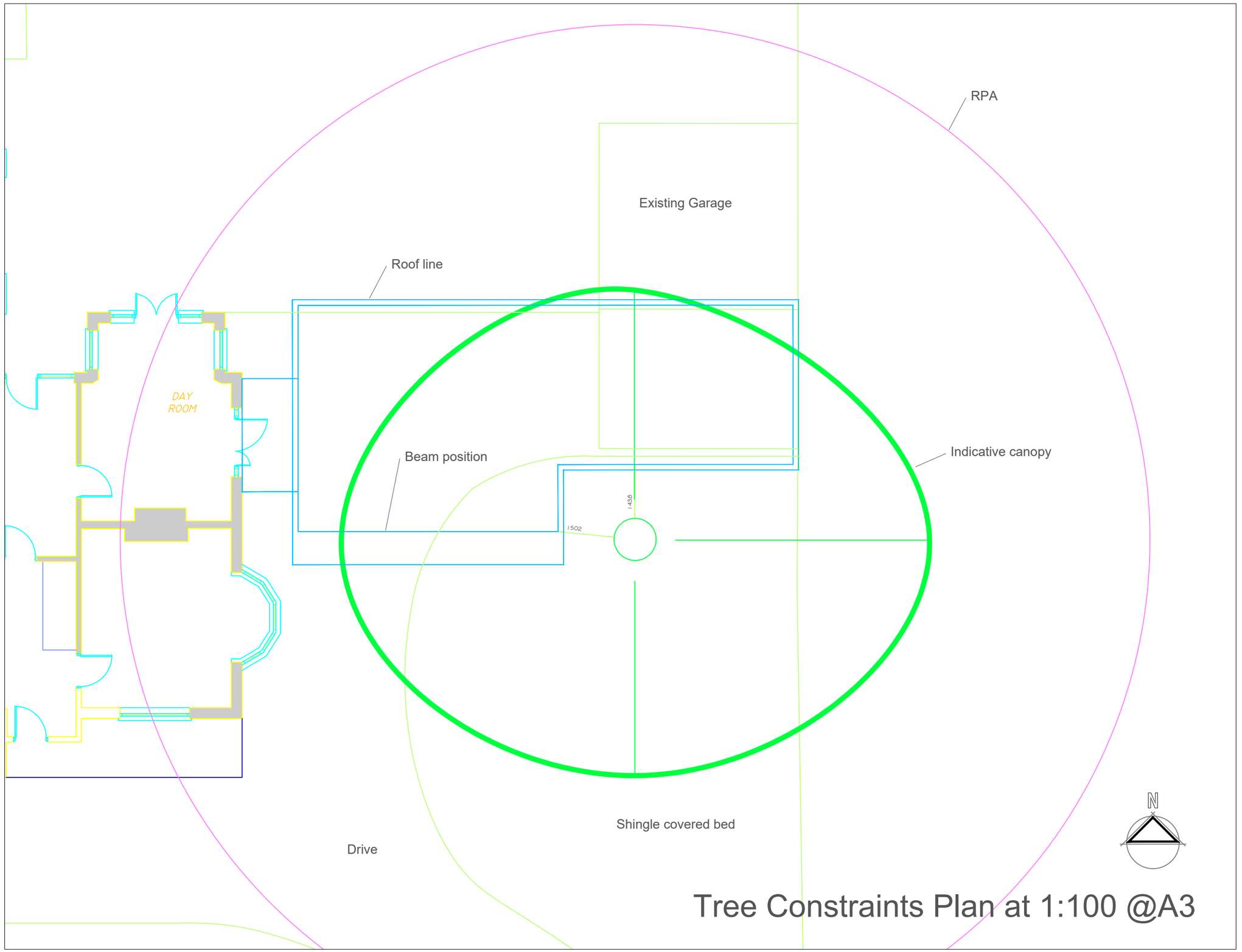
Site looking north-east - showing existing fence and pavement.
The blue line indicates approximate position of building.
Green hatch indicates suggested ground protection area

48 New Road
Sutton Bridge
Figure 2 Photographs

APPENDIX A – Tree Survey.
Tabulated Tree Survey Information

The # symbol indicates estimated measurements due to restricted access or calculated diameter if multi-stem. If trees were measured below the standard height it is stated.

Ref	*Species*	**Height** (m.)	**Stem Dia.** (mm)	**Canopy spread and height** (m) *(x4 cardinals)*	**Branch Height** *(m) (Clearance) (x4 cardinals)*	**Life Stage**	**Physiological Condition**	**Structural Condition**	**Remaining** Contribution ? *(Yrs)*	**Mature size?** *(Hght / spread)*	**CATEGORY**	*Notes + Preliminary management recommendations*	**RPA** Area sqm (Radius in m in brackets)
T1	Copper beech *Fagus sylvatica Purpurea*	16	1130	N. E. W. S. **8 7 6 8** **4-5**	N. E. W. S. **5**	*M*	G	G	40+	25m x 8m	Ai	Large and well-shaped Copper beech with no obvious decay or defects. Likely to be same age as house, garage and neighbouring house (ie has grown up with these constraints). Large parts of calculated root protection area are under adjacent pavement which appears to be at least partially permeable.	598 sqm (13.80m)



Key

- 'A' category tree's
- 'B' category tree's
- 'C' category tree's
- Root Protection Area
- Indicative shade pattern (Tree at likely full height)
- Proposed Building

Tree Constraints Plan at 1:100 @A3

Rev	Amendment	Ch'kd	Date
-	-	-	-

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Norfolk PE33 0RF Tel: 01553 840284
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Appendix B: Arboricultural Method Statement

Arboricultural Works

General

1.1 The following arboricultural works are required at the outset of the project and should be completed prior to any other works on site including clearance, establishment of offices and contractors compound, servicing or other groundworks. They will ideally be undertaken outside of the bird nesting season (March to August).

1.2 Removal of trees.
None

1.3 Pruning of trees/hedge.
None

Tree Protection Works

Construction Exclusion Zones (Provisional)

1.4 Supply and erect fixed, rigid barriers as indicated on TPP 01 and described in BS 5837:2012 (or similar approved by the arboricultural consultant). The construction exclusion zone (CEZ) shall be clearly marked with an all-weather notice 'Construction Exclusion Zone – No Access'. The protective fencing shall be in place before the demolition works and groundworks commence.

1.5 The barrier fencing shall be maintained throughout the works. If for any reason works are required within the CEZ during the construction period the main contractor must seek advice from the arboricultural consultant before allowing such work to proceed.

1.6 Demolition / Site clearance
Clearance of the garage/fence/pavement and kerb should be carefully undertaken to minimise ground disturbance and compaction. Work with hand tools may be required in close proximity to the tree. Should groundworks leave exposed roots they should be carefully pruned (see below) and covered as soon as possible.

Soil Stripping / Soil Storage

1.7 All soil arisings from foundation construction should be removed from site. No soil stripping should be undertaken from RPA areas without consultation and agreement with the Arboricultural Consultant. No soil or arisings should be deposited within the RPA of the tree and do not track across RPA of trees in excavating and removing soil.

1.8 **Imported Topsoil**
Not required

Ground Protection Works (Provisional)

1.9 Temporary ground protection will be required where RPA areas cannot be retained within a Construction Exclusion Zone (CEZ - refer to plans). Ground protection allows access for building works whilst protecting the soil and potential root growth beneath. Remove organic material (eg grass,) without removing more than 25mm of soil. Make up levels with clean topsoil to provide level ground. Cover the area with a layer of permeable geotextile, undertake any other levelling required with clean coarse sand and cover the area with scaffold boards - or a similar robust timber, metal or plastic tracking system. The purpose of these measures is to create a firm and safe base for construction works (foundation construction / scaffold erection e.t.c) and to minimise compaction and contamination of the rpa soil zone. When clearing these ground protection measures at the completion of works, the goal will be to remove all waste arisings (mortar and other building residues) with the geotextile layer, and leave the underlying soil / garden clean and uncontaminated.

Construction Works

1.10 Once site clearance is complete it is recommended that the construction working area is covered with a geotextile and 50-100mm of clean shingle or hard stone. This will allow access for the screw piles and beam construction whilst mitigating the potential for ground compaction and further disturbance to the roots below the new building. It will also ensure a clean, permeable profile below the finished building.

Root pruning

1.11 Should roots larger than 25mm diameter be exposed during excavations for foundations works, do not rip or smash roots, or loosen the soil around them. This is likely to lead to further death and decay of the root system and ingress of pathogens such as fungi. Use hand tools to carefully excavate the ground , cutting back roots in sections with clean, sharp, secateurs or loppers. At completion of the trench, cut the root cleanly back to the face of the excavation and protect the root from desiccation with wet sacking or similar until the trench is back filled. Do not leave exposed roots in open trenches for more than 1 hour.

Roots found with a diameter of more than 50mm should ideally be retained and the scheme reviewed to allow them to be retained (eg the position of screw piles might be adjusted).

'No-Dig' Pavement Construction

1.12 Unlikely to be required – assuming the new entrance drive will be gravel. A permeable geotextile should be used separate clean soil from any new pavement construction. Avoid trenching or level reductions for services, kerbs or pavements. Raising levels and filling of more than 100mm to within the RPA should also be avoided. If there is an expected need to vary from this – refer to a suitably qualified arboricultural consultant.

Miscellaneous works.

1.13 Service corridors had not been fully fixed at the time this report was prepared. Service corridors (above or below ground) must avoid the trees to be retained and their root protection areas. The arboriculturist must be immediately consulted should any plans for services, drainage works or alteration of soil levels be likely to affect the proposed construction exclusion zones around trees and hedges.

1.14 It is assumed that a contractors site office, contractor parking, materials storage, and soil storage areas will not be required within the immediate vicinity of the trees. Any layout that may impinge on the CEZ's must be agreed with the arboricultural consultant.

1.15 Cement and fuel storage, refuelling areas, concrete mixing areas, mixer washdown areas must be located away from CEZ's and the contractor must ensure that spillages and runoff is not allowed to contaminate retained topsoil or RPA's. No fires shall be permitted on site where flames might come within 10m of trees.

Landscape Works.

1.16 At completion of the main building phases and after the site has been cleared of all building waste and in preparation for the landscape works, the tree protection barriers can be removed.

1.17 Landscape works carried out within the RPA areas must be undertaken with care, utilising hand tools where required and avoiding damage to the tree and roots. Tractor-mounted rotovators or large machines must not be allowed to cultivate or over-track the RPA's.

1.18 A copy of the Tree Protection Plan and Arboricultural Method Statement must be made available to the landscape contractor and retained on site.

Monitoring Site Works.

1.18 A suitably qualified arboricultural consultant shall be retained throughout the construction period (including any defects liability or maintenance period) in order to:

- liaise with the construction team regarding tree protection matters and any changes to the design or construction management plan that may arise.
- confirm that tree protection works have been implemented properly and are maintained throughout the works.
- act as the clients representative in arboricultural matters when liaising with the LPA or any other stakeholders.

Appendix C: Terminology of information provided in the survey schedule.

1.1 **Tree Identification:** A sequential reference number has been given to each individual tree.

1.2 **Species** – Latin and common names are given.

1.3 **Principal dimensions:** The dimensions taken are:

- **Height**, estimated and expressed in metres (to nearest 0.5m).
- **Stem diameter** (in millimetres), obtained at 1.5m above ground level (or estimated where measurement is impractical). On sloping ground, the height is taken on the up-slope side. For irregular shaped stems the narrowest point is normally measured. For multi-stemmed trees (indicated by the letter 'M') an average diameter is calculated using criteria and formulae provided in BS5837:2012, Annex C. (To nearest 10mm)
- The **crown spread** is expressed in terms of the crown radii estimated at the four cardinal points (N,E,S,W) and given in metres.
- **Height above ground level** is expressed by two measurements – the height of the canopy above ground level (N,E,S,W), and the height on the stem where the first significant branches are attached.

Note that any estimated figures are given a '#' suffix.

1.4 **Life Stage:** The following age definitions are used in RMA surveys:

NP Newly planted: Estimated to have been planted within last 3 yrs.

YM Young Mature: (sometimes called *Early Mature or EM*). A tree estimated to be the first third of its expected life. Established young tree, normally of good vigour and still increasing in height, but beginning to spread laterally. Beginning to make an impact upon the local landscape & environment.

M Mature: (sometimes called *Middle Aged or MA*). A tree estimated to be in the second third of its expected life. Well-established, still vigorous but unlikely to get much taller, tending instead to fill out and increase spread. Bark may be beginning to crack & fissure.

LM Late-Mature: A tree estimated to be in the final third of its expected life. Fully mature with vigour declining. Likely to possess features that could be regarded as potential faults such as dead or collapsing branches, old wounds, etc. with safety related issues, but also likely to be of high amenity, ecological and potentially cultural value. LM trees can also sometimes be classed as *Ancient* (especially old for the particular species) or *Veteran* (a tree that has acquired the characteristics of old trees (hollows, dead wood, epiphytes etc) but is not necessarily very old for its species).

1.5 **Physiological Condition:** Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress, etc. (Fungal *disease* may be included here but *decay giving rise to structural weakness* is recorded under 'Structural Condition' – see below):

Good Healthy bark, leaves, flowers, fruits – no obvious dead or dying growth.
Fair Indications of slight stress or minor disease (e.g. the presence of minor dieback or of epicormic shoot growth, chlorotic leaves, deficient growth of leaves flowers, fruit).
Poor Significant stress or disease noted; widespread dieback or dysfunctional areas of bark etc.
Dead The tree has no apparent signs of live regenerating material.

1.6 **Structural Condition:** Defects affecting the structural stability of the tree, including decay, significant dead wood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members). Classified as:

Good No obvious structural defects noted.
Fair Minor, potential or initial stages of defects
Poor Some significant defects likely to lead to failure of major branches or the entire tree in future years.
Severe Defects liable to cause significant failure or collapse imminently.

1.7 **Estimated remaining contribution:** An estimate of the time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued maintenance). We indicate by numbers 1-4 the BS5837 categories which are:

1. < 10 years; 2. 10 + years;
3. 20 + years; 4. > 40 years.

1.8 **Retention Category:** Trees are graded into categories **U, A, B** or **C**, based on criteria given in BS5837:2012 and summarised below. Categories A, B and C are further characterised by the use of sub-categories ~ where (i) refers to qualities of the tree of an arboricultural nature, (ii) indicates qualities concerned primarily with their situation within the landscape and (iii) refers to other values such as those of a cultural, historic or ecological nature.

Note: *This is NOT a health and safety classification or risk assessment. The classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.*

U UNSUITABLE TREES: Trees that cannot realistically be retained as living trees in the context of the current land-use for longer than 10 years. Dead, diseased, defective, irremediable specimens, that should be removed on grounds of sound arboricultural management; or trees that will be left unstable or unviable by other essential works; or poor quality specimens that are suppressing potentially better specimens.

A HIGH RETENTION VALUE: Important or valuable trees or groups of trees that are likely to make a substantial contribution to the locality for 40 years or more.

i. Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g. dominant trees or trees within an avenue, etc.)

ii. Trees, groups or woodlands of particular screening benefit in relation to views into and out of the site; those of notable visual importance (including avenues & other features that may be assessed collectively as groups)

iii. Trees, groups or woodlands with significant conservation, historical, commemorative or other value (e.g. veteran trees)

B MODERATE VALUE: Trees or groups of trees likely to make a significant contribution for in excess of 20 years.

i. Good specimens but showing some impairment (e.g. remediable defects, minor storm damage or poor past management) that stops them being 'A' class.

ii. Numbers of trees, groups or woodlands forming distinct landscape features that are of higher collective value than they would warrant as individuals (e.g. non category A trees within avenues). Also trees internal to the site that are of little visual impact within the wider locality.

iii. Trees, groups or woodlands with clearly identifiable conservation or other cultural values and benefits.

C MINOR VALUE: Trees or groups of rather low quality, but capable of remaining for at least 10 years, e.g. until new planting is established. *Also* young trees (below 150mm dia) whose loss would be easily mitigated by new planting, or that could be transplanted.

i. Trees not qualifying in categories A or B.

ii. Secondary specimens within groups or woodlands whose loss would not greatly diminish their landscape value; trees providing only minor or short term screening benefit

iii. Trees with limited or no conservation or other cultural value.

1.9 **Root Protection Area (RPA):** The RPA represents an area considered likely to contain sufficient root volume to ensure survival of the tree if works occur around it. The RPA is calculated as an area with a radius twelve times the effective stem diameter of the tree at 1.5m above ground level. For multistem trees BS5837:2012 has introduced new formulae based on the number of stems. For two to five stems take each stem diameter, square, add the sums together and square root. For trees with more than five stems take an average diameter, square, multiply by number of stems and square root. Therefore, for a multistem tree with 6 stems, average of 150mm diameter each:

150mm x 150mm x6 = 135,000 √ = 367 x 12/1000 = an RPA circle of 4.4m

Further guidance on measurement of tree stems and root protection areas is provided in BS5837:2012 as Annex C and Annex D.

1.10 The RPA of each tree on a site is used to determine the ***Construction Exclusion Zone (CEZ) –*** an area that should be entirely protected from construction works, storage, compaction or contamination throughout the construction period. The CEZ should be protected by sturdy temporary fencing as defined in BS5837:2012 and detailed in a Tree Protection Plan method statement.

1.11 **Notes / Preliminary Management Recommendations:** This column allows for any further field notes and preliminary recommendations for works that are considered necessary to ensure immediate site safety or where further detailed survey investigation is recommended. This might include wildlife surveys.

1.12 **Arboricultural Impact Assessment Scale:** A subjective assessment based on evaluation of the following thresholds: *Slight adverse* – likely to cause minor impacts to the health or other values of the tree (such as amenity and ecological) that the tree is likely to recover from naturally; *Moderate adverse* – notable impacts to the tree which could lead to a long term decline in health or other notably reduced values; *Major adverse* – impacts that are likely to lead to decline and death of the tree. *Slight beneficial* – could have some benefits for the tree or some of its values; *Moderate beneficial* – likely to enhance the health and values of the tree over time; *Major beneficial* – expected to greatly prolong the life of the tree and/or significantly enhance its other values.